Investment In Bursa Malaysia Between Returns And Risks

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Abstract: It became necessary to develop stock markets in light of the big challenges facing the economies of countries recently, especially after the increase in financing needs imposed by economic and social development plans. Hence invest in more asset types. One way to reduce the volatility of a portfolio is to add some alternative assets like commodities or real estate, which don't generally track the markets for stocks and bonds. in our paper A total of 30 companies listed in Bursa Malaysia are chosen to formed a single portfolio. The portfolio consists of different stock from different sub-industries, a well-diversified portfolio is will be best bet for consistent long-term growth of any investments. It protects investor's assets from the risks of large declines and structural changes in the economy over time. Always monitor the diversification of your portfolio, making adjustments when necessary and it will greatly increase your chances of long-term financial success. From the Markovitz mean variance method we found that investing our biggest chunk in Bursa Malaysia Berhad is an ideal way to diversify the portfolio. From the industry perspective investing in construction and industry section is the best way.

1.0 INTRODUCTION

A total of 30 companies listed in Bursa Malaysia are chosen to formed a single portfolio. The portfolio consists of different stock from different sub-industries. The data are retrieved from Yahoo Finance website. Total of 167 observations on weekly basis are used in this analysis. The time frame of this observation used in this analysis is from 1st April 2014 until 13th March 2017. We also will see which industry is giving higher return.

No	Industry	Company	Code
1	Service	AIR ASIA X	5238
2		AEON CO. (M) BHD	6599
3		MALAYSIA AIRPORTS HOLDINGS BERHAD	5014
4		BUMI ARMADA BERHAD	5210
5		AMWAY (MALAYSIA) HOLDINGS BERHAD	6351
6	Property	KSL HOLDINGS BERHAD	5038
7		ISKANDAR WATERFRONT CITY BERHAD	1589
8		IGB CORPORATION BERHAD	1597
9		ECO WORLD DEVELOPMENT GROUP BERHAD	8206
10		EASTERN AND ORIENTAL BERHAD	3417
11	Plantation	TSH RESOURCES BERHAD	9059
12		SARAWAK PLANTATION BERHAD	5135
13		KIM LOONG RESOURCES	5027
14		IOI CORPORATION BERHAD	1961
15		FELDA GLOBAL VENTURES HOLDINGS BERHAD	5222
16	Industrial	HUME INDUSTRIES BERHAD	5000
17		HARTALEGA HOLDINGS BERHAD	5168
18		CB INDUSTRIAL PRODUCT HOLDING BERHAD	7076
19		CAHYA MATA SARAWAK BERHAD	2852
20		ANN JOO RESOURCES BERHAD	6556
21	Construction	MUHIBBAH ENGINEERING (M) BHD	5703
22		KERJAYA PROSPEK GROUP BERHAD	7161
23		EURO HOLDING	7208
24		EKOVEST BERHAD	8877
25		WCT HOLDINGS BERHAD	9676
26	Finance	BURSA MALAYSIA BERHAD	1818
27		AMMB HOLDINGS BERHAD	1015
28		ALLIANZ MALAYSIA BERHAD	1163
29		AFFIN HOLDINGS BERHAD	5185
30		AEON CREDIT SERVICE (M) BERHAD	5139

Table 1

2.0 Descriptive Analysis

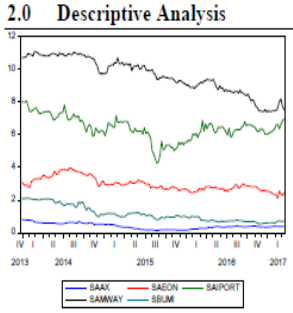


Figure 1

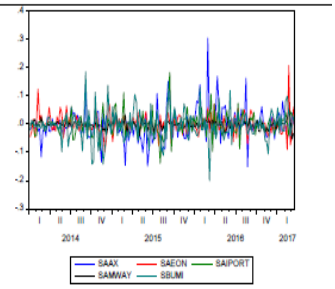


Figure 2

Figure 1 shows price graph for the selected companied from service sector and we can see Amway is the company which has highest price but when we see from return we can see that Amway didn't perform like Air Asia X.

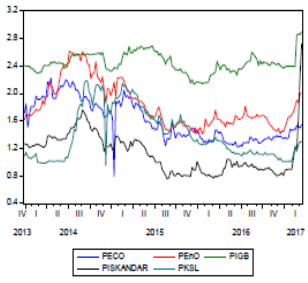


Figure 3

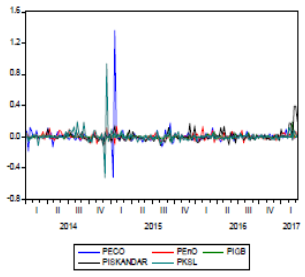


Figure 4

Figure 3 and figure 4 shows price graph for the selected companied from property sector . We can see almost all the 5 companies did give a same average return an there is some abnormal return from Ecoworld Berhad and KSL berhad.

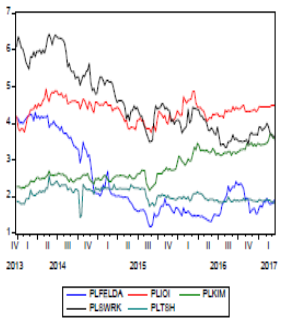


Figure 5

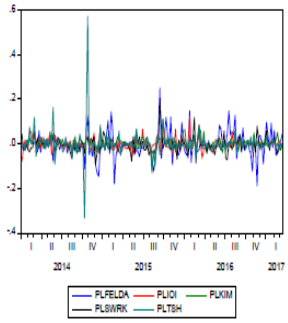


Figure 6

Figure 5 and figure 6 shows price graph for the selected companied from plantation sector. Wecan see that the return from Felda is very volatile.

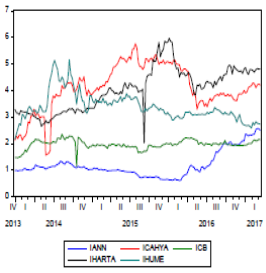


Figure 7

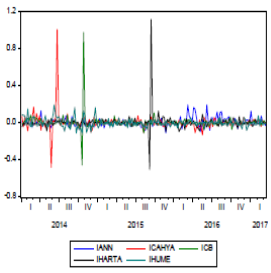


Figure 8

Figure 7 and figure 8 shows price graph for the selected companied from industry sector. There issome abnormal return for Cahya Berhad and ICB.

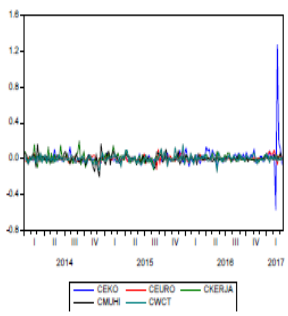


Figure 9

Figure 10

Figure 9 and figure 10 shows price graph for the companies from finance construction sector

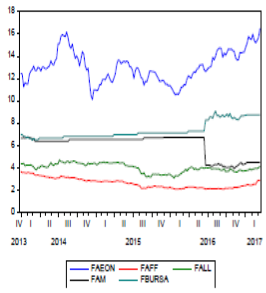


Figure 11

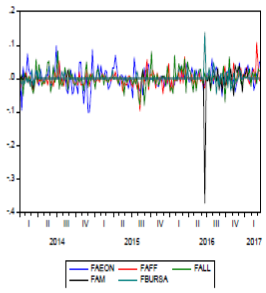


Figure 12

Figure 11 and figure 12 shows price graph for companies from finance sector

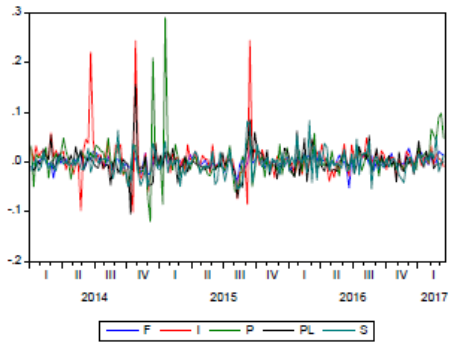


Figure 13

Figure 13 shows return series from sector perspective. We average the companies' price for each industry to observe the performance of sectors. We can see that the return series is volatile.

	Price Series				Return Series			
	Mean	SD	Max	Min	Average Return	Annualised Return	Standard Deviation	Retrun/STD
Air Asia X	0.42	0.17	0.83	0.16	-0.26%	-3.18%	5.80%	-3.18%
AEON CO. (M) BHD	2.98	0.41	3.97	2.13	-0.08%	-1.01%	3.58%	-1.01%
(M) BHD								
KERJAYA PROSPEK GROUP BERHAD	1.52	0.53	2.49	0.70	0.86%	10.34%	4.45%	10.34%
EURO Holding	1.01	0.12	1.34	0.77	0.14%	1.67%	3.14%	1.67%
Ekovest Berhad	0.51	0.22	1.45	0.34	1.23%	14.81%	11.58%	14.81%
WCT HOLDINGS BERHAD	1.68	0.23	2.09	1.12	0.07%	0.88%	4.17%	0.88%
BURSA Malaysia Berhad	7.31	0.75	9.08	6.47	0.14%	1.72%	1.48%	1.72%
AMMB HOLDINGS BERHAD	6.03	0.98	6.76	3.90	-0.17%	-2.09%	3.08%	-2.09%
ALLIANZ MALAYSIA BERHAD	3.99	0.40	4.70	3.07	0.00%	-0.02%	2.72%	-0.02%
AFFIN HOLDINGS BERHAD	2.61	0.45	3.66	2.06	-0.13%	-1.52%	2.13%	-1.52%
AEON CREDIT SERVICE (M) BERHAD	13.07	1.41	16.50	10.12	0.21%	2.58%	3.06%	2.58%

Table 2

MALAYSIA AIRPORTS HOLDINGS BERHAD	6.41	0.72	8.05	4.26	-0.01%	-0.10%	3.97%	-0.10%
BUMI ARMADA BERHAD	1.17	0.48	2.13	0.55	-0.49%	-5.90%	5.36%	-5.90%
AMWAY (MALAYSIA) HOLDINGS BERHAD	9.60	1.09	11.06	7.37	-0.20%	-2.41%	1.44%	-2.41%
KSL HOLDINGS BERHAD	1.41	0.37	2.19	0.95	0.48%	5.82%	9.36%	5.82%
ISKANDAR WATERFRONT CITY BERHAD	1.12	0.30	2.73	0.76	0.65%	7.81%	6.57%	7.81%
IGB CORPORATION BERHAD	2.44	0.15	2.90	2.13	0.14%	1.64%	2.32%	1.64%
ECO WORLD DEVELOPMENT GROUP BERHAD	1.60	0.29	2.23	0.80	0.46%	5.55%	12.12%	5.55%
Eastern and Oriental Berhad	1.83	0.33	2.62	1.41	0.21%	2.48%	4.02%	2.48%
TSH RESOURCES BERHAD	2.05	0.18	2.58	1.44	0.15%	1.78%	6.10%	1.78%
SARAWAK PLANTATION BERHAD	4.61	0.91	6.43	3.35	-0.25%	-3.05%	3.46%	-3.05%
Kim Loong Resources	2.80	0.40	3.70	2.17	0.31%	3.71%	2.59%	3.71%
IOI Corporation Berhad	4.35	0.27	4.93	3.75	0.08%	0.91%	2.64%	0.91%
FELDA GLOBAL VENTURES HOLDINGS BERHAD	2.37	0.98	4.30	1.18	-0.30%	-3.60%	5.76%	-3.60%
Hume Industries Berhad	3.38	0.52	5.16	2.16	0.25%	2.99%	4.74%	2.99%
HARTALEGA HOLDINGS BERHAD	4.04	0.81	5.97	2.02	0.61%	7.38%	10.04%	7.38%
CB INDUSTRIAL PRODUCT HOLDING BERHAD	1.97	0.17	2.35	1.13	0.53%	6.41%	8.89%	6.41%
Cahya Mata Sarawak Berhad	4.09	0.88	5.76	1.56	0.78%	9.31%	9.49%	9.31%
ANN JOO RESOURCES BERHAD	1.19	0.48	2.57	0.61	0.67%	8.07%	4.81%	8.07%
MUHIBBAH ENGINEERING	2.33	0.31	3.17	1.56	0.23%	2.72%	4.60%	2.72%

Table 2

Table 1 show the descriptive statistic of company price. Among the 30 companies By average Aeon Credit stock price is the most expensive and the volatility of Aeon credit is the biggest which is 1.41. From the table 1 we can see that the maximum weakly return is 1.23% which is from Ekovest Berhad and the minimum return is -0.49% from Bumi Armada. The most risky company to invest is Eco world where the risk is 12.12% while the safest stock is Amway company which is 1.44% of risk. The ratio of return to the risk shows the amount of return one can achieve for 1% of risk. We can see that Kerjaya Prospect Group give the highest return to risk.

3.0 Variance –Covariance Matrix

Variance

Variance (σ2) is a measure of the dispersion of a set of data around their mean value. It is computed by finding the probability-weighted average of squared deviations from the expected value. Variance measures the variability from an average (volatility). Volatility is a measure of risk, so this statistic can help determine the risk an investor might take on when purchasing a specific security.

$$\sigma_i^2 = \sum_{j=1}^{M} \frac{(R_{ij} - \bar{R}_i)2}{M} \qquad \text{(Equation 1)}$$

Covariance

Covariance measures how two variables move together. It measures whether the two move in the same direction (a positive covariance) or in opposite directions (a negative covariance). In the stock market, a strong emphasis is placed on reducing the risk amount taken on for the same amount of return.

$$\sigma_{xy} = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y}) \qquad \text{(Equation 2)}$$

σ_{xy} – Covariance between x and y asset

x_i – ith data from x asset

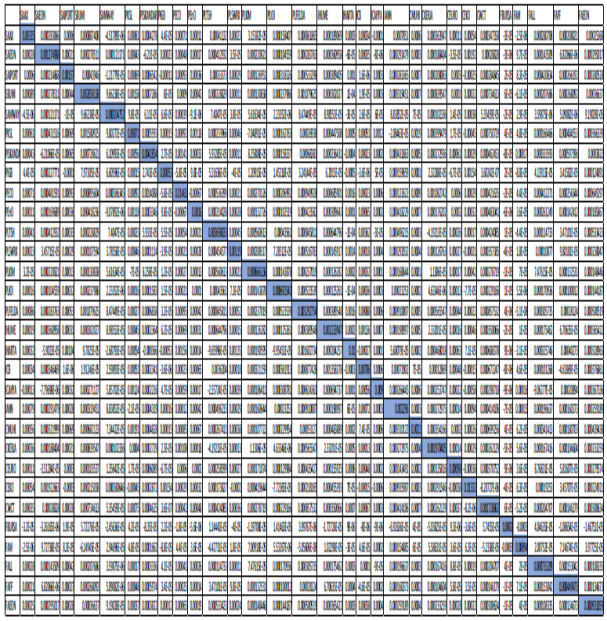
$\bar{x}$ – Mean for x data

y_i - ith data from y asset

$\bar{y}$ – Mean for y data

n - Number of asset

A variance-covariance matrix is a square matrix that contains the variances and covariance's associated with several variables. The diagonal elements of the matrix contain the variances of the variables and the off-diagonal elements contain the covariance's between all possible pairs of variables. Table above shows the variance-covariance of all 30 companies listed.



A variance-covariance matrix is a square matrix that contains the variances and covariances associated with several variables. The diagonal elements of the matrix contain the variances of the variables and the off-diagonal elements contain the covariances between all possible pairs of variables. Table above shows the variance-covariance of all 30 companies listed.

4.0 Portfolio Diversification on Risk

4.1 Company Stock Diversification

	Equal Weight	Weight to maximize the return	Weight to minimize the Risk	Weight to maximize Sharpe Ratio
Air Asia X	3.33%	0.00%	0.90%	0.00%
AEON CO. (M) BHD	3.33%	0.00%	0.00%	0.00%
MALAYSIA AIRPORTS HOLDINGS BERHAD	3.33%	0.00%	0.00%	0.00%
BUMI ARMADA BERHAD	3.33%	0.00%	0.00%	0.00%
AMWAY (MALAYSIA) HOLDINGS BERHAD	3.33%	0.00%	20.22%	0.00%
KSL HOLDINGS BERHAD	3.33%	0.00%	0.00%	1.31%
ISKANDAR WATERFRONT CITY BERHAD	3.33%	0.00%	0.00%	5.97%
IGB CORPORATION BERHAD	3.33%	0.00%	5.60%	0.00%
ECO WORLD DEVELOPMENT GROUP BERHAD	3.33%	0.00%	0.00%	0.01%
ECO WORLD DEVELOPMENT GROUP BERHAD	3.33%	0.00%	0.00%	0.01%
Eastern and Oriental Berhad	3.33%	0.00%	0.53%	0.29%
TSH RESOURCES BERHAD	3.33%	0.00%	0.00%	0.00%
SARAWAK PLANTATION BERHAD	3.33%	0.00%	2.65%	0.00%
Kim Loong Resources	3.33%	0.00%	0.10%	0.13%
IOI Corporation Berhad	3.33%	0.00%	3.03%	0.00%
FELDA GLOBAL VENTURES HOLDINGS BERHAD	3.33%	0.00%	0.00%	0.00%
Hume Industries Berhad	3.33%	0.00%	0.28%	0.31%
HARTALEGA HOLDINGS BERHAD	3.33%	0.00%	0.11%	0.27%
CB INDUSTRIAL PRODUCT HOLDING BERHAD	3.33%	0.00%	0.00%	1.67%
Cahya Mata Sarawak Berhad	3.33%	0.00%	0.00%	3.46%
ANN JOO RESOURCES BERHAD	3.33%	0.00%	0.00%	11.45%
MUHIBBAH ENGINEERING (M) BHD	3.33%	0.00%	0.00%	0.00%
KERJAYA PROSPEK GROUP BERHAD	3.33%	0.00%	0.78%	7.14%
EURO Holding	3.33%	0.00%	1.18%	1.11%
Ekovest Berhad	3.33%	100.00%	0.00%	3.82%
WCT HOLDINGS BERHAD	3.33%	0.00%	0.00%	0.00%
BURSA Malaysia Berhad	3.33%	0.00%	43.26%	56.49%
AMMB HOLDINGS BERHAD	3.33%	0.00%	17.19%	5.01%
ALLIANZ MALAYSIA BERHAD	3.33%	0.00%	0.00%	0.00%
AFFIN HOLDINGS BERHAD	3.33%	0.00%	4.16%	0.00%
AEON CREDIT SERVICE (M) BERHAD	3.33%	0.00%	0.00%	1.57%
	100.00%	100.00%	100.00%	100.00%
	0.21%	1.23%	0.00%	0.35%
	1.94048%	11.54340%	0.62265%	1.29691%
	10.84%	10.69%	-0.28%	26.79%

Table 3

From the table 3 the first column shows calculation of expected return of portfolio and standard deviation of portfolio when we allocate our investment equally in all the 30 companies. We can see that the weakly return is 0.21% with 1.94% of risk. The third column shows allocation of our asset if our motive is just to maximize our return but didn't consider the risk. We can see that we need to allocate all our investment in Ekovest Berhad which is the highest return company. For a risk averse investor who just wants to minimize the risk the result shown in 4th column. We can see that the return is zero but the risk is 0.62%.When we maximize the return to risk ratio we can see that we can achieve 0.35% weakly with 1.29% of risk. By maximizing return to risk ratio, we are deriving a portfolio which will give the highest return to 1% of risk. In this portfolio we need to invest 56.49% of our investment in Bursa Malaysia Berhad and 11% in Ann Joo Berhad. Investing our investment in the calculated proportion to maximize our return to risk ratio is the best. The efficient frontier for the above portfolios are as below:

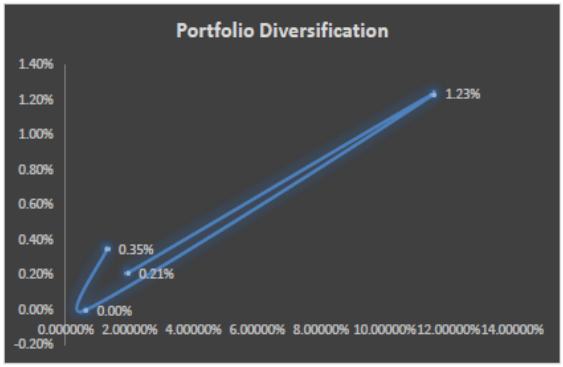


Figure 14

Figure 14 shows the efficient frontier for the portfolio that we calculated above.

4.2 Diversification by Sector

	Equal Weight	Weight to maximize the return	Weight to minimize the Risk	Weight to maximize Sharpe Ratio
Service	16.67%	0.00%	2.19%	0.00%
Property	16.67%	0.00%	0.00%	10.59%
Plantation	16.67%	0.00%	4.07%	0.00%
Industry	16.67%	100.00%	0.00%	36.18%
Construction	16.67%	0.00%	1.27%	53.23%
Finance	16.67%	0.00%	92.47%	0.00%
E[r]	0.21%	0.57%	0.01%	0.52%
SD	1.95%	4.00%	1.22%	2.68%
Sharpe Ratio	10.77%	14.22%	0.98%	19.2%

Table 4

From the table 2 the first column shows calculation of expected return of portfolio and standard deviation of portfolio when we allocate our investment equally in the 5 industries. We can see that the weakly return is 0.21% with 1.94% of risk. The third column shows allocation of our asset if our motive is just to maximize our return but didn't consider the risk. We can see that the expected weekly return is 0.57%. The highest return is from Industry sector. For a risk averse investor who always want to minimize the risk he can invest 92.47% of his investment in Finance sector. The average weekly return he may get is 0.01% with the lowest risk. The best investment decision is by maximizing return to risk ratio. We can see that we can achieve the that decision by investing 53.23% in construction sector and 36.18% in industry sector while the rest as mentioned in our table. We will get return about 0.52% which is little smaller than just maximizing return .The efficient frontier for sector portfolio is as below:

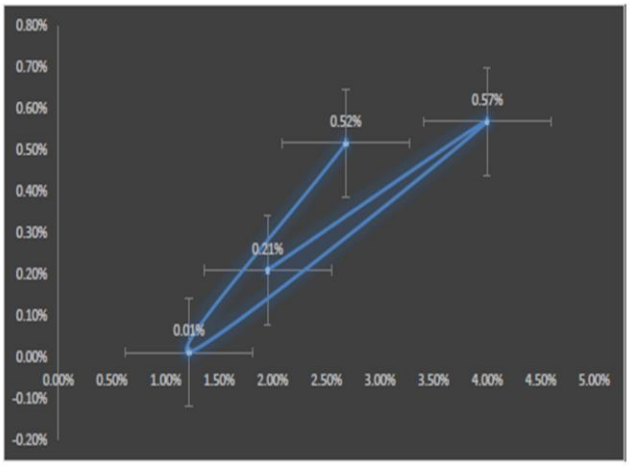


Figure 14

Figure 14 shows the efficient frontier for the portfolio for sector that we calculated above.

5.0 Capital Asset Pricing Model (CAPM)

The capital asset pricing model (CAPM) is a model that describes the relationship between risk and expected return and that is used in the pricing of risky securities. Beta is a measure of the risk arising from exposure to general market movements as opposed to idiosyncratic factors. The market portfolio of all investable assets has a beta of exactly 1. A beta below 1 can indicate either an investment with lower volatility than the market, or a volatile investment whose price movements are not highly correlated with the market.One of the most important developments in modern capital theory is the capital asset pricing model (CAPM) developed by Sharpe (1964) and Lintner (1965) in (Wakyiku, 2010). The CAPM is one the underlying building blocks of Modern Portfolio Theory and as such is constructed on a number of strong theoretical assumptions concerning the behaviour of financial markets and of investors (Boďa & Kanderová, 2014). CAPM is a model that attempts to describe the relationship between risk and the expected return on an investment that is used to determine an investment's appropriate priceThe CAPM depends on certain assumptions. There are nine assumptions in CAPM. Firstly, investors are wealth maximizes who select investments based on expected return and standard deviation. Next, investors can borrow or lend unlimited amounts at a risk-free (or zero risk) rate. There are no restrictions on short sales (selling securities that you don't yet own) of any financial asset. In addition, all investors have the same expectations related to the market. All financial assets are fully divisible and can be sold at any time at the market price. Furthermore, there are no transaction costs, no taxes and no investor's activities can influence market prices. Lastly, the quantities of all financial assets are given and fixed. The KLCI index is taking as proxy of the market portfolio, and the riskless rate is proxied by the nominal 3 month interest rate Malaysian government securities. The data was obtain using data stream from 2013 until 2015 with weekly frequency enable the 144 observation in the analysis. This study is calculated by the below formula:

$$(R_i - R_F) = \alpha_o + \beta_i(R_m - R_F)$$

Where Ri is average return of selected stocks, RF is average return of riskless asset (3 months government bond yield), α0 is intercept of selected stocks in CAPM, βi is coefficient for selected stocks in CAPM and Rm is average return of market (KLCI).

Stock	Beta	R2	Expected Return
AIR ASIA X	1.094646776	0.4762	-0.03%
AEON CO. (M) BHD	0.47188962	0.0241	0.00%
MALAYSIA AIRPORTS HOLDINGS BERHAD	1.584989508	0.2649	-0.04%
BUMI ARMADA BERHAD	1.564420028	0.0612	-0.04%
AMWAY (MALAYSIA) HOLDINGS BERHAD	0.088683729	0.1313	0.01%

KSL HOLDINGS BERHAD	1.04772188	0.3226	-0.02%
ISKANDAR WATERFRONT CITY BERHAD	1.378717611	0.0198	-0.04%
IGB CORPORATION BERHAD	0.18893472	0.0257	0.01%
ECO WORLD DEVELOPMENT GROUP BERHAD	3.015609895	0.0007	-0.09%
EASTERN AND ORIENTAL BERHAD	0.592355574	0.0117	-0.01%
TSH RESOURCES BERHAD	1.133619239	0.0245	-0.03%
SARAWAK PLANTATION BERHAD	0.646222821	0.0153	-0.01%
KIM LOONG RESOURCES	0.41552982	0.0230	0.00%
IOI CORPORATION BERHAD	1.08339476	0.2513	-0.02%
FELDA GLOBAL VENTURES HOLDINGS BERHAD	1.939751458	0.0031	-0.06%
HUME INDUSTRIES BERHAD	0.705529667	0.0931	-0.01%
HARTALEGA HOLDINGS BERHAD	1.756828854	0.0303	-0.05%
CB INDUSTRIAL PRODUCT HOLDING BERHAD	0.871121569	0.0232	-0.02%
CAHYA MATA SARAWAK BERHAD	0.696192406	0.0867	-0.01%
ANN JOO RESOURCES BERHAD	0.853939386	0.0004	-0.02%
MUHIBBAH ENGINEERING (M) BHD	1.526404575	0.0453	-0.04%
KERJAYA PROSPEK GROUP BERHAD	0.718705355	0.1361	-0.01%
EURO HOLDING	0.580867207	0.0011	-0.01%
EKOVEST BERHAD	0.072706366	0.0010	0.02%
WCT HOLDINGS BERHAD	1.050229783	0.1216	-0.02%
BURSA MALAYSIA BERHAD	0.107891899	0.0470	0.01%
AMMB HOLDINGS BERHAD	0.064593334	0.0240	0.01%
ALLIANZ MALAYSIA BERHAD	1.202709218	0.1205	-0.03%
AFFIN HOLDINGS BERHAD	0.718966986	0.1767	-0.01%
AEON CREDIT SERVICE (M) BERHAD	0.84979522	0.0105	-0.02%

Table 5

Based on the above table 5.0, the estimated beta coefficients range are from 1.01561 to 0.07271. It shows that all selected stocks beta coefficients are positive and statistically significant at the 5% level. In addition, o 12 stocks (significant in beta) are sensitive to market because value of beta is more than 1, that mean 1% change in market will led more than 1% change in stocks.The highlighted columns are companies with positive return and the companies that we need to invest.

6.0 Evaluation

6.1 Jensen's Alpha

Jensen's alpha is a measure of a security's excess return with respect to the expected return given by the Capital Asset Pricing Model. Investors are looking for assets or portfolios with positives alphas, as it signals positive abnormal return. An asset with a positive alpha has a higher return than the risk adjusted return estimated by the CAPM. Computations of Jensen's alpha are based on realized returns. For a stock or portfolio i, thus have:

$$\alpha_i = [R_i - R_f] - \beta_i [R_m - R_F] \quad \text{(Equation 4)}$$

α_i – Alpha value
R_i – Expected Return of the stock
R_f - Risk-Free-Asset Rate
R_m - Market Return
β_i – Beta Coefficient

Jensen's Alpha can help determine if the average return generated is acceptable based on the amount of risk involved. If the return is higher than that predicted by the CAPM, the security or portfolio is said to have a positive alpha (or an abnormal return).The advantages of using Jensen's alpha for performance evaluation are:

a) It adjusts for the level of risk taken. The calculation for this index will take into account the risk from market and the risk premium of an investment.
b) Indicate funds that are more aggressive in trying to outperform the market. Since this is the calculation index using the CAPM, investors can know which asset will be more volatile to the market.

The disadvantages of using this index are as follows:
a) It does not reward a portfolio for being well diversified. The alpha will not tell if the well diversified portfolio will have higher return or not. This is because the benchmark of market return will treat all stock/fund equally regardless their level of risk.

6.2 The Sharpe Ratio

The Sharpe ratio is a measure of stock or fund performance, it measures the reward per unit of risk. By definition, it is the ratio of an asset's excess return to its volatility. It is also known(Equation 4)as the reward-to-variability ratio. The higher the Sharpe ratio, the better an investment option you have.

$$\text{Sharpe Ratio} = \frac{\bar{R} - R_f}{\sigma} \quad \text{(Equation 5)}$$

$\bar{R}$ – Expected Return of the stock
R_f – Risk-Free-Asset Rate
σ – Stock's Risk (Standard Deviation)

Investors who either purchases undervalued stocks or sell overvalued stocks will increase the return of a portfolio without affecting risk; hence the Sharpe ratio captures stock selection ability. In addition, since the denominator measures total variation in returns, the Sharpe ratio captures the benefits of diversification. Advantages of using Sharpe ratio for stock evaluation are:

a) Valuate the total performance of an investment portfolio or the performance of an individual stock.
b) Measures how well an investment performs in comparison to the rate of return on a risk-free investment

The disadvantage to the Sharpe ratio is:
a) Investors cannot tell if the ratio is good or bad given no other information. If is no benchmark set for the ratio to be evaluate as "good" or "bad" investment, this ratio cannot be used to assess the risk and return to the investors.
b) Assumes zero-correlations of candidate positions with existing portfolio. Since there is no correlation between portfolio, investors are tend to do bad investment decision on which portfolio is better.
c) Does not distinguish between systematic and unsystematic risk. The risk included in the assessment failed to differentiate the risk that will be face by the

investors, or, the investors cannot tell if the stock influence by the market of just another things outside the market.

6.3 The Treynor Ratio

The Treynor ratio uses a portfolio's beta as its risk. Beta measures the volatility of an investment relative to the stock market (KLCI), which is given a beta of one. More volatile stocks will have a beta greater than one, whereas less volatile stocks have a beta lower than one.

$$\text{Treynor Ratio} = \frac{\bar{R} - R_f}{\beta} \qquad \text{(Equation 6)}$$

$\bar{R}$ – Expected Return of the stock
R_f – Risk-Free-Asset Rate
β_i – Beta Coefficient for *i*th stock

Unlike Sharpe, Treynor uses beta in the denominator instead of the standard deviation. The beta measures only the portfolio's sensitivity to the market movement, while the standard deviation is a measure of the total volatility both upside as well as downside. A stock with a higher Treynor ratio implies that the equities have a better risk adjusted return than that of another stock with a lower Treynor ratio.The advantages of using Traynor Ratio are as follow:

a) Examine how well a stock outperforms the equity market as a whole. This is because the Treynor ratio will include the risk-free asset and the volatility to market. Thus, it will give better understanding of the performance of a stock.
b) Treynor ratio is useful in comparing funds that invest in similar market sectors and achieve similar returns. The beta value is derived from same benchmark market, which easy to identify which stock is more or less volatile to the market.

The disadvantages of using Treynor ratio are as follow:
a) If one has a broadly diversified portfolio covering many different asset classes, what would the appropriate benchmark be for the portfolio? The difficulties of using which benchmark will arise if the portfolio has equities and bond market, for example, in the market.
b) Focus only on systematic risk. Since only beta used to measure in this ratio. Investors cannot tell what "other things" that influence the volatility of the stock and what is the level of the unsystematic risk.

	Treynor
FBURSA	0.011981423
CKERJA	0.011789798
ICAHYA	0.010933737
IANN	0.007708713
PLKIM	0.007101108
PIGB	0.006479974
ICB	0.005966769
PISKANDAR	0.004618944
PKSL	0.004488151
IHARTA	0.003418252

Table 4

Based from table 4 above, we can see that the only positive and the highest ratio is 0.012. It's belong to Bursa Malaysia Bhd. This indicate that this stock have 0.012 excess return for per unit of risk.

	Sharpe
CKERJA	0.190316013
IANN	0.136967915
PLKIM	0.11398366
CEKO	0.105333967
PISKANDAR	0.096987884
FBURSA	0.087230866
ICAHYA	0.080192541
FAEON	0.065500601
IHARTA	0.059818283
ICB	0.058439501

Table 5

Based from table above, we can see that the only positive and the highest ratio is 0.1903. It's belong to company Kerjaya Group Bhd. This indicate that the stock have 0.1903 excess return for per unit of risk.

	Jensen
CEKO	0.012169519
CKERJA	0.008732039
ICAHYA	0.007862531
IANN	0.00689009
PISKANDAR	0.006864392
IHARTA	0.006637531
PECO	0.005568683
ICB	0.005511281
PKSL	0.005079388
PLKIM	0.003100263

Table 6

Based from table above, we can see that the only positive and the highest ratio is 0.01217. It's belong to company Ekoworld. This indicates that this stock have 0.01217 excess return. There are other stock that have positive value and the highest such as Kerjaya, Mary Ann and etc. Stock Ekoworld is the best performance stock on risk-

adjusted basis compare to others. The higher ratio the better risk-adjusted returns.

Conclusion

Building a portfolio is easy. Building the right portfolio takes discipline and most of all, risk awareness. The greatest favour investors can do for themselves is to determine goals and invest according to associated time horizons. There might be different buckets of money for different goals. The key to building a portfolio is to have investments with different levels of risk. The number of investments is not what matters. It is how risk is spread across those investments.As you build a portfolio, it helps to understand your risk tolerance by determining your investor profile. These range from conservative (seeking lower investment risk) to aggressive (able to tolerate greater investment risk). Higher-risk investments may have the potential for higher returns, but they also have greater potential for losses Invest in more asset types. One way to reduce the volatility of a portfolio is to add some alternative assets like commodities or real estate, which don't generally track the markets for stocks and bonds. Commodities can also counteract inflation, because their prices typically rise when inflation picks up. If you are risk averse then consider putting a small portion of your portfolio in a market-neutral fund, which aims to make a profit in both bull and bear markets. Overall, a well-diversified portfolio is will be best bet for consistent long-term growth of any investments. It protects investor's assets from the risks of large declines and structural changes in the economy over time. Always monitor the diversification of your portfolio, making adjustments when necessary and it will greatly increase your chances of long-term financial success.From the Markovitz mean variance method we found that investing our biggest chunk in Bursa Malaysia Berhad is an ideal way to diversify the portfolio. From the industry perspective investing in construction and industry section is the best way.